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# USAID and Africa RISING team visit project sites in Northern Ghana

Mid July, an Africa RISING team and donor representatives visited project intervention sites in Northern and Upper East Regions of Ghana, to observe and monitor project progress. The team was composed of USAID representatives led by Jerry Glover, senior project advisor; Tracy Powell, and Biniam Iyob (all from Washington, DC); and Justice Ajaari, new IFPRI M&E Specialist, based in Tamale. They were accompanied by Project Coordinator Irmgard Hoeschle-Zeledon, Africa RISING West Africa and East/Southern Africa Projects; Asamoah Larbi, IITA's Country Representative in Ghana, Chief Scientist for Africa RISING West Africa Project and Farming Systems Agronomist for Africa RISING-Ghana, based in Tamale, Northern Ghana; and Katherine Lopez, Africa RISING communication focal point for West Africa.

The team met with project beneficiaries that included farmers and their families, producers, extension workers, and local leaders in the intervention communities—mostly under the trees or in community buildings, but also directly at the research sites. They discussed challenges in the farming communities, Africa RISING interventions, and feedback on the projects and research experiments.

The following intervention communities in Bolgatanga, Upper East Region (UER) were visited: Sabulungo, Bongo District; Nyangua, Bonia, and Tekuru, Kassena-Nankan District.

*Many of the communities in the Upper East Region of Northern Ghana are experiencing droughts. Irmgard Hoeschle-Zeledon leads the" rain dance" during one meeting with farmers. An hour later, it rained, drenching the parched soils of the Kassena-Nankan District.*

*Tracy Powell of USAID is introduced by a village elder to one of the local swains, a young farmer.*

This week's issue of the IITA Bulletin is a special edition on the IITA-led Africa-RISING Project.

Africa RISING

http://africa-rising.net

*An agricultural extension agent in Duko, Salvelugu District, Northern Region, introduces the visitors to the community, many of them women.*

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*After looking at the baby cowpea trials in the farm of one farmer-cooperator, the IITA-USAID team takes a moment to bond with the future farmers in Gbanjong, Tolon District, Northern Region.*

In the Northern Region (NR), these communities were visited: Duko, Salvelugu District; Tibali, Gbanjong, and Tiborgunayili, Tolon District.

In these communities, mother and baby trials have been set up to demonstrate cropping and sustainable intensification technologies with selected farmers, extension workers, local partners, and community leaders. Through this approach, communities learn about new and improved varieties, enhanced agronomic practices, better farming procedures, and crop and livestock integration.

According to Asamoah Larbi, the visits enabled the team "to see what is exactly happening on the ground and how farmers and beneficiaries perceive the project's interventions." Farmers and their families, including children, and sometimes led by village elders, came to the meetings to welcome the visitors and partners through dances and testimonials, provide feedback about the project, and also to say "thank you" to IITA, USAID, and national/local partners for the new technologies and knowledge that they are gaining from the project.

"I am impressed by what I have seen," said Jerry Glover, after visiting the communities. "In the first year of the project, we worked with a lot of partners on quick-win projects; in the second year, we saw the coming together of various projects, which has provided opportunities for Africa RISING to build on successful experiences that would help farmers and move the project forward."

Farmer-partners in the various communities said that they are happy working with Africa RISING because they learn about improved varieties and practices. The women farmers voiced out their appreciation for "being carried along and for interventions that consider the participation of women and youths."

Irmgard Zeledon thanked the farmer-participants taking part in the various trials and experiments and assured them and the communities that Africa RISING will continue to help address their challenges to ensure food security and livelihoods improvement. However, she also pointed out that the success of the project would depend on the farmers themselves.

## Smallholder farmers cite benefits from project

In a recent visit to project communities in northern Ghana, many farmers participating in field trials said that they are "thankful to Africa RISING for the many interventions introduced by the project to help their communities."

One woman farmer leader in Nyangwa, Kassena-Nankan District, Upper Eastern Region, said "I am happy that women are not being left behind in this project. We are also grateful that the project is helping us increase crop yields by introducing new varieties and showing us better ways to plant our crops, for example, how to plant in rows."

Another woman farmer said that women benefit by learning how to process different crops, such as soybean, cowpea, and rice into different food products.

The men farmers cited how the mother trials showed them the different available varieties of crops and how they can be planted better to get more yield. They appreciated learning how to use manure from their farm animals as organic fertilizer

*The women's group in Sabulungo, Bongo District, Upper East Region, Northern Ghana, warmly welcome the IITA-USAID team with a dance.*

to improve the soil and increase yields, and the correct timing of fertilizer application. They also learned how the cropping system can be integrated into livestock farming.

The village chief in Nyangwa said, "It is good that the project is teaching our farmers how to fish...I am happy for our community because of the new technologies introduced by the project."

The head of the farmers group in Tibali, Abdul Rahaman Abukari, remarked, "Projects such as Africa RISING come to the community to ask us farmers about our problems and then come back with solutions, for example, seeds resistant to drought and *Striga*." Tibali has 870 residents, with 61% of them women. Hence, Africa RISING's interventions also heavily focus on making farming work less tedious for women.

Because of the drought, the farmers have just planted their crops, and are expectantly waiting for the rains to come and their crops to grow well.

The project communities in the northern Guinea savannas of Ghana continue to be plagued by drought, low fertility levels of soils and insufficient fertilizers, lack of improved varieties and seeds, low prices of produce in the markets, and other problems.

Project interventions that integrate livestock farming, e.g., poultry and small ruminants, with staple crop production, intercropping cereals and maize, and incorporating vegetables, in addition to processing technologies, using small machines to improve farm work, and better water management practices would provide farm families in the communities with options. However, farmers have to decide which package of options would work best for them and adopt those, according to Jerry Glover from USAID.

The Africa Research in Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development as part of the US government's Feed the Future (FTF) initiative.

Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three projects are led by IITA (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads an associated project on monitoring, evaluation, and impact assessment.

*This community in Gbanjong, Tolon District, Northern Region, has many women farmers who were interested in taking part in the mother and baby trial experiments introduced by the Africa RISING project.*

*One of the farmers in Nyangua, Kassena-Nankan District, Upper East Region, Northern Ghana, airs her concerns on farming during a discussion.*

*Farmers' group in Nyangua, Kassena-Nankan District, Upper East Region, Northern Ghana, participate in discussions with the IITA-USAID team.*

*The elders (seated) in Gbanjong, Tolon District, Northern Region, led the community in a discussion with the IITA-USAID visitors.*

*An agricultural extension agent (AEA) facilitates the discussion with the farmers in Bonia, Kassena-Nankan District, Upper East Region, Northern Ghana.*

*Many of the meetings with farmers took place under the shade of huge trees, e.g., Duko, Salvelugu District, Northern Region.*

## Africa RISING sites in Ghana

The project areas in Ghana comprise of three administrative regions in the north of the country—the Upper West, the Upper East, and the Northern regions. The region is characterized by small land holdings of low input–output farming systems with low yields and household food and nutritional insecurity. Some of the major problems raised by farmers were declining soil fertility and thus declining crop yields.

The Africa RISING community analysis report in Ghana states that "each region is dominated by cereal–legume cropping systems with livestock also providing an important source of food and cash. Major crop production constraints include low and declining soil fertility, a lack of improved seed, problems of pests, disease, and weeds especially *Striga*, a lack of draft power and equipment, and the high cost of agri-inputs associated with each. At the same time local communities raised concerns about lack of crop storage facilities, postharvest pest and disease problems, and lack of knowledge about processing with little or no processing equipment, compounded by low market prices, inadequate access roads, and poor transport facilities."

Some of the key interventions identified by Africa RISING were the introduction of several improved sustainable land and livestock management practices supported with training in production, utilization, and processing skills; leadership, marketing, and communication skills to encourage farmer-to-farmer learning and extension; advocacy to promote improved policies to reduce land degradation, improve market infrastructure, and build partnerships.


*Administrative regions and agroecological zones, northern Ghana.*

# Keeping deadly poison off key crops along the value chain

Increasing crop production does not always lead to more food and a healthier population. In some cases, the consumption of the crops and their products may instead lead to serious health problems in both human beings and livestock and even death. One such instance is when the crops are contaminated with mycotoxins, poisonous substances produced by naturally occurring fungi that attack crops while in the field and in all handling practices before, during, and after storage.

Some of the well-known mycotoxins include aflatoxins, which are produced by the *Aspergillus sp;* and fumonisins which are produced by *Fusarium sp*. Aflatoxins are carcinogenic and can lead to death in acute poisoning cases. Fusarium is suspected to reduce body immunity and retard the growth of children

One of the objectives of the Africa RISING project is to ensure the food produced by farmers in the target areas is free from mycotoxins or has levels that are within the allowable limits and therefore fit for human and livestock consumption and for regional and international trade. This is by analyzing the levels of mycotoxins in maize and beans along the value chain.

So far, over 700 samples of maize and beans have been collected from households in three villages in Babati District: Seloto, Sabilo, and Long. The researchers collected samples of maize and beans from the field and beans from storage. The team will soon collect maize from storage to complete the targeted quantity of samples required for the analysis.

The researchers also used the opportunity to create awareness on mycotoxins among farmers, village heads, and extension staff and distributed factsheets which have been translated into Swahili on mycotoxins.

*Farmers threshing beans on the floor.*

"Once all the samples are collected and the analyses accomplished, we will be able to determine if the levels of myctotoxins in the targeted villages are alarming or not and this will determine the next course of action. The results from the analyses will be compared and related to the information collected from each household that provided samples to be able to determine if there are any practices contributing to mycotoxin contamination", says Simon Boniface from the International Institute of Tropical Agriculture (IITA), who is working on the project.

Boniface says contamination of the crops occurs either in the field as these fungi are naturally found in the soil or at any stage during harvesting, handling, and storage. Contaminated crops remain infected as currently there are no effective and reliable means of decontamination.

"The most available means of controlling and managing the problem is to avoid creating a conducive environment for the fungi. Alternatively, biological control using a strain of the same fungi but which do not produce toxins has proved very effective in controlling the toxin producing strain in other countries like USA and Nigeria to control aflatoxin produced by Aspergillus sp." he said.

He points out that the common practice of spreading maize and beans on the bare ground to dry in the area can lead to contamination of the two important food crops in the area as the fungi are found in the soils.

This component of the project is being led by Fen Beed of IITA in partnership with Dr Martin Kimanya from the Nelson Mandela African Institute of Science and Technology (NM-AIST). It also involves an MSc student from Sokoine University of Agriculture (SUA).

*A farmer spreading beans on the floor to dry.*

*Samples of maize collected for analysis.*

# Climbing beans doubling yields

Climbing beans are turning out to be one of the winning innovations being introduced by the Africa RISING project in Babati district, Tanzania. The beans have tendrils which coil around supporting stakes or strings and can grow as high as 2 meters tall and produce many pods and leaves.

According to Edgar Lyakurwa, an extension officer with the Ministry of Agriculture Food Security and Livestock for Babati the climbing beans that were demonstrated in ten farmers' field in Seloto and Long villages, have amazed the farmers in the area with their high yield. They are also harvested over a long time providing continuous food for the family.

"Farmers love the climbing beans because they are able to harvest them more than once compared to the normal bush beans they grow," he said. 'The beans are tied either to a stake or a string and can grow to be as tall as a person. The farmers start harvesting the pods from the bottom and they can continue harvesting for even up to one and half months," he explained.

He added that the beans have many leaves and help protect the soil cover and also enrich it with organic matter.

Rich in proteins, beans are one of the important crops for the communities living in Babati who boil it with maize to make their local dish "makande". They are also an important source of income. The beans also help to enrich the soils though nitrogen fixation.

The climbing beans yield nearly twice as much as the ordinary beans the farmers are used to growing says Festus Ngulu, one of the project staff from IITA. "You can compare climbing beans to constructing a multi-storey building. It makes efficient use of apical space to accommodate more people within a unit area as compared to single storey unit," he said.

He says to maximize the yield potential, the farmers are encouraged to stake as early as 10–14 days after emergence of the seedling. The stakes are inserted into the soil close to the young plants whose tendrils coil around the stakes for support to the stems as they grow upwards. Alternatively, farmers can use string tied to poles instead of the stakes.

*Farmers examine the performance of climbing beans against their own bush beans.*

*Placing the stakes at the right time is very important.*

This component of the project is being handled by the International Centre for Tropical Agriculture (CIAT) in collaboration with the Selian Agricultural Research Institute (SARI).

*The different staking options for the climbing beans.*

# Project boosting productivity of farmers' traditional mixed farming systems

"I like variety 5. The cob has many rows and the grains have filled the cob well. There are also two cobs on the maize stalk," Esther Liberati, 43 year-old farmer from Seloto village in Babati district in Tanzania, explains her number one choice from a set of ten different types of maize being tested for adaptability to the region. This is after she painstakingly accessed each of them, feeling the weight of the cob and even counting all the grain rows to make her selection.

Esther was among the over one hundred farmers who took part in a series of Farmers Field days organized by the Africa RISING project in her village, which is one of the project's action sites. The field days had three objectives; the first was to demonstrate to the farmers improved farming methods including proper spacing when intercropping maize and pigeon pea and the use of organic fertilizer.

The second was to involve farmers in the selection of improved high-yielding and drought-tolerant varieties that are suitable to the region but which also meet their preferences and lastly, to collect baseline information on farmers in the area as part of the project's monitoring and evaluation activities.

The field days were held in Seloto and Dulang villages in Babati district, Manyara Region, Northern Tanzania.

Organizations involved in the field day included the International Institute of Tropical Agriculture (IITA), the International Maize and Wheat Improvement Centre (CIMMYT), Selian Agricultural Research Institute (SARI), and the International Food Policy Research Institute (IFPRI).

*Some were lucky—they received vouchers for either fertilizer or seeds for the next planting season as part of the project's efforts to encourage the use of fertilizers and improved maize varieties.*

*The young and the old taking part in the exercise to select the maize they liked the most. That which they liked the most they marked with a piece of red wool.*

## Selecting the top four

According to Jumbo McDonald, a maize breeder with CIMMYT, they wanted to select the four best performing varieties/ lines from the list of ten. Three of them were already released varieties from SARI and a private seed company being grown in other parts of the country while seven were new breeding lines including a three-way cross hybrid.

"We are looking for varieties that do well under drought conditions to give farmers options in the face of climate change. We are therefore testing these varieties for adaptability to the environment in Babati and we are involving farmers to ensure we also take into account the factors they consider important in our selection,' he explained.

If any of the new lines emerge among the most preferred, they will then be forwarded to the National Maize Research Programme for national performance trials before they are formally released by the National Seed Release Committee for the region.

"The farmers traditionally intercrop maize with beans, pigeon pea, and sometimes even sunflower. They are looking for maize varieties that intercrop well. Some maize varieties are very high yielding but they have large canopies that hinder the growth of the legumes," added Ruhende Yangole, a Principal Agricultural Field Officer from SARI in Arusha.

*Collecting data from the farmers.*

## Early adopters

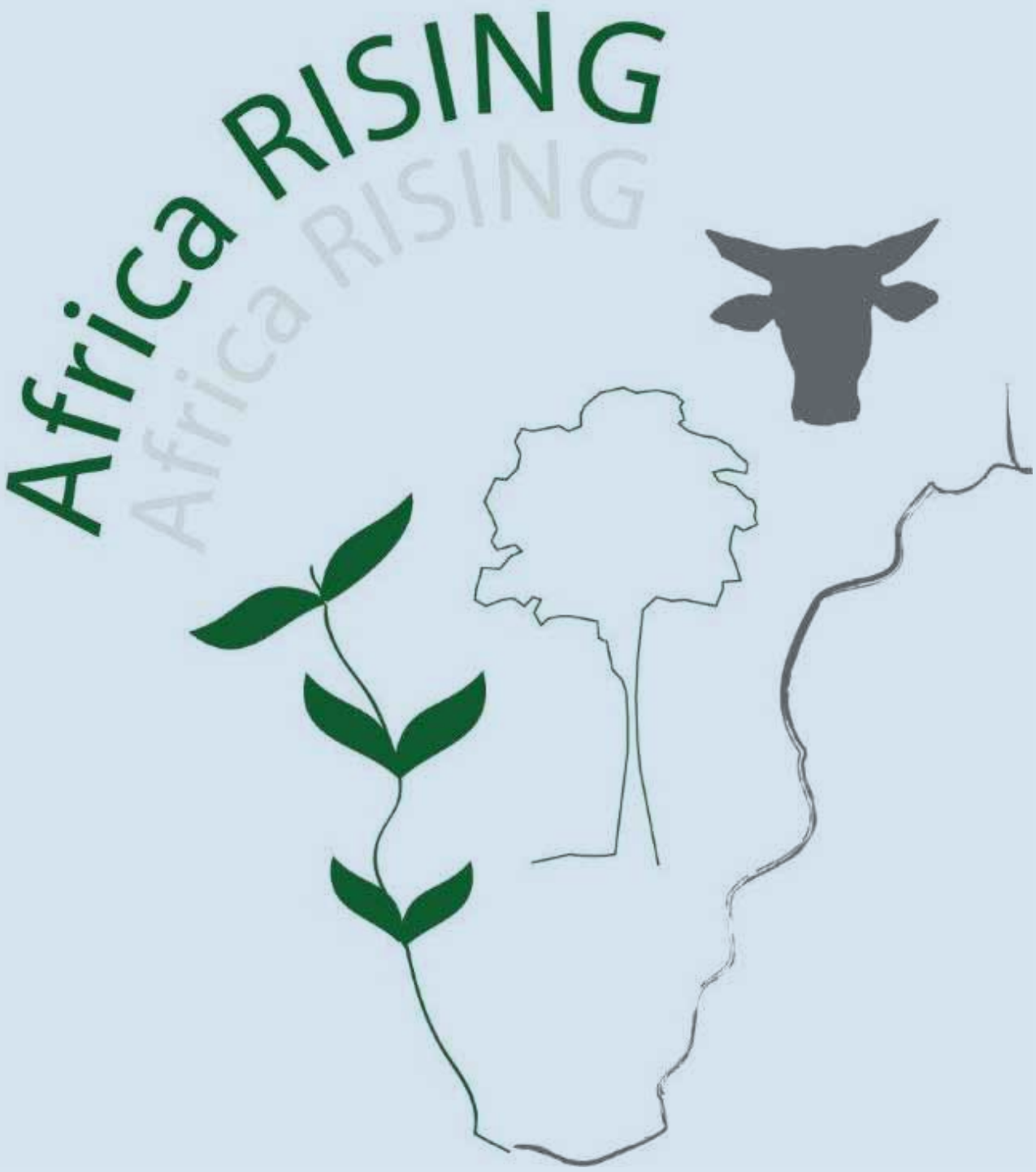
Samueli Pero, 36 from Dalang village is one of the farmers who has donated a part of his farm for the demonstration and says he will try out the new improved farming practices on a portion of his farm in the coming planting season.

"I have seen how well some of the varieties are doing due to the use of modern farming methods. The spacing is different and there are only two crops being grown together. Usually in our farms we grow maize, beans, pigeon peas, and even sunflower together. Our spacing is too wide since we use animal plough. We also do not use fertilizer, instead use farmyard manure from our livestock but sometimes, it's not enough for the whole land," he said.

The climate in the area, similar to many other places in the continent has been changing over the years due to global warming. For example, explains, Festo Ngulu, from IITA who is working with the project in Babati, "In the last ten years or so, the short rainfalls, named *Mvuli* in Swahili have been very erratic and farmers no longer count on having two farming seasons every year.

"Furthermore, the area is facing rapid population increase leading to shrinking of farm sizes and soil fertility is declining due to limited use of fertilizer by farmers to replenish the soil nutrients.

"The farmers therefore need support to increase the production and productivity of their lands without causing any negative impact on the environment, soils and water resources. This is the mission of the Africa RISING project."

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